DRAFT - TCEQ RTCR Level 2 Assessment Form

The TCEQ has determined that this public water system (PWS) triggered a Level 2 Assessment under the Revised Total Coliform Rule (RTCR). The PWS is required to cooperate fully with a Level 2 Assessment performed by a third-party approved by the TCEQ.

This form must be completed by the TCEQ-approved third-party assessor, and submitted for compliance with Level 2 Assessment requirements of Title 30 Texas Administrative Code (30 TAC) 290.110. If you do not have TCEQ approval to perform a Level 2 Assessment, do not do so: contact the TCEQ immediately to learn how to get approval to do so.

All sanitary defects must be described in the Corrective Action Report and Plan (CARP). The box next to each question labeled 'CARP' should be checked for every item that has additional explanation in the CARP.

Contents

TCEQ RTCR Level 2 Assessment Form

PWS Participants	
Responsible Party	
Name:	Phone Number:
	E-mail:
Title/Affiliation:	License Number (if licensed):
I certify that the information herein is true and correct: Signature:	
Manager	
Name:	Phone Number:
	E-mail:
Title/Affiliation:	License Number (if licensed):
I certify that the information herein is true and correct: Signature:	
Operator	
Name:	Phone Number:
	E-mail:
Title/Affiliation:	License Number (if licensed):
I certify that the information herein is true and correct: Signature:	
Assessors	
Lead assessor	
Name:	Phone Number:
	E-mail:
Title/Affiliation:	License Number (if licensed):
I certify that the information herein is true and correct: Signature:	
Assessor	
Name:	Phone Number:
	E-mail:
Title/Affiliation:	License Number (if licensed):
I certify that the information herein is true and correct: Signature:	

Attach additional pages to document any other participants in the Level 2 Assessment.

RTCR-L2A Attachments

Document	Attached? (or N/A)	Issues or updates in CARP?
Required for all PWSs:		
Monitoring Plan including: • coliform sample siting plan and • distribution system map including indicating sample sites locations		
Coliform sample collection Standard Operating Procedure (SOP) (standard operating procedure)		
Daily/weekly disinfection level resultsdisinfectant residual monitoring records • for the 'triggering month' • plus the twelve previous months.		
Dead-end main (DEM) flushing results • for the 'triggering month' • plus the twelve previous months.		
If chloramines are used:		
Nitrification Action Plan (NAP)		
NAP Chloramine effectiveness monitoring data including: • monochloramine, free ammonia, nitrite, and nitrate for the 'triggering month' • plus the twelve previous months		
If the PWS prepares an SWMOR or GWMOR:		
If the PWS operates a plant that treats surface water or groundwater under the direct influence of surface water, submit the Surface Water Monthly Operating Reports (SWMORs) or GWMOR for • the 'triggering month' • plus the twelve previous months.		
Additional pertinent data may include:		
SWTP or GUI data such as(for example, daily log sheets, raw turbidity data analysis, instrument calibration records, SCADA printouts), etc.		
Comprehensive Compliance Investigation Report (if needed, submit open records request to the TCEQ in order to obtain a copy of the complete report)		
Cross Connection Control Program documentation		
Customer Service Agreement		
Plumbing Ordinance		
Purchase Water Contracts (for purchased-seller relationships purchasers/wholesalers)		
Documentation of any violation or enforcements		
Photos		

Section 1: Capacity Development

A. Administrative factors (Financial, managerial, and technical capacity)

A_A. Administrative factors—Technical

Question	Yes	No	N/A?	In CARP?
A_A1. Does this PWS meet all TCEQ requirements for operators?	☐	☐	☐	☐
A_A2. Is the person providing primary responses for this assessment:				
a. Licensed at an appropriate level for the system?	☐	☐	☐	☐
b. Working directly for the system?	☐	☐	☐	☐
c. Work for an operating company?	☐	☐	☐	☐
d. Spend adequate time at the system?	☐	☐	☐	☐
e. Familiar with the water quality and standards for this PWS?	☐	☐	☐	☐
f. Familiar with operation rules for this PWS?	☐	☐	☐	☐
g. If an unlicensed person collects coliform samples at a TNC, do they understand and perform sampling correctly?	☐	☐	☐	☐
A_A3. Is ongoing training provided and accepted by operational staff?	☐	☐	☐	☐
a. Do operators take the appropriate training needed to maintain licensure and to pursue higher licensure?	☐	☐	☐	☐
b. Do operators re-take multi-license safety training?	☐	☐	☐	☐
c. Do operators get advanced technical training?	☐	☐	☐	☐
A_A4. Do SOPs exist for all critical tasks?	☐	☐	☐	☐
a. Are SOPs developed, reviewed, and approved by technical and management staff?	☐	☐	☐	☐
b. Are SOPs reviewed periodically and updated as needed?	☐	☐	☐	☐
	☐	☐	☐	☐
c. Are staff properly trained to use the appropriate SOP?	☐	☐	☐	☐
d. Are staff evaluated on how well they follow SOPs?	☐	☐	☐	☐
e. Are SOPs made readily available for operator (and assessor) review?	☐	☐	☐	☐
A_A5. Is the plant operations manual:	☐	☐	☐	☐
a) Kept up to date,	☐	☐	☐	☐
b) Accurate,	☐	☐	☐	☐
c) Thorough enough to provide information on the routine maintenance and emergency procedures at the water system?	☐	☐	☐	☐

A_B. Administrative factors—Management

Question	Yes	No	N/A?	In CARP?
A_B1. Does management support regulatory compliance?	☐	☐	☐	☐
a. Does management set goals for regulatory compliance?	☐	☐	☐	☐
b. Does management set goals for optimization?	☐	☐	☐	☐
c. Does management visit the facilities periodically to assess their condition?	☐	☐	☐	☐

d. Does management promote an environment where operators can share ideas?	☐	☐	☐	☐
e. Does management seek and receive training?	☐	☐	☐	☐
f. Does management seek and accept TCEQ assistance?	☐	☐	☐	☐
A_B2. Does excessive operator turnover occur?	☐	☐	☐	☐
a. Is operator pay competitive with systems of similar size and complexity?	☐	☐	☐	☐
b. Does the PWS promote/support pursuing licensure or higher licensure through an effective certification pay program?	☐	☐	☐	☐
c. Do new operators get on-the-job training from more experienced senior operators?	☐	☐	☐	☐
d. Do managers promote cross-training at different facilities for water systems with multiple water treatment plants?	☐	☐	☐	☐
A_B3. Does management communicate with TCEQ adequately?	☐	☐	☐	☐
a. Has the PWS done all regulatory notifications within the appropriate time frame?	☐	☐	☐	☐
b. Is management responsive to regional requests?	☐	☐	☐	☐
c. Does the PWS correct violations and additional issues found in investigations within established corrective action due dates?	☐	☐	☐	☐

A3. Administrative factors—Financial

Question	**Yes**	**No**	**N/A?**	**In CARP?**
A_C1. Is the PWS financially stable?	☐	☐	☐	☐
a. Does the PWS have a budget which ensures funds are available and used for current treatment, operational, and maintenance requirements?	☐	☐	☐	☐
b. Are funds available for emergency system needs?	☐	☐	☐	☐
c. Does the PWS prioritize system needs according to potential public health risks?	☐	☐	☐	☐
d. Does the PWS implement an effective asset management program (for example: line replacement, etc.)?	☐	☐	☐	☐
e. Does the PWS routinely update its master plans to assist in developing and prioritizing capital improvement projects (CIP)?	☐	☐	☐	☐
A_C2. Does the PWS receive payment for water?	☐	☐	☐	☐
a. If so, are the rates appropriate for systems of similar size and facility needs?	☐	☐	☐	☐
b. If so, do rates increase with amount used (for example, Inclining Block Rate, etc.)?	☐	☐	☐	☐
c. Is there an excess of unmetered or unbilled connections?	☐	☐	☐	☐
d. Are meters old?	☐	☐	☐	☐
A_C3. Is the PWS under receivership or temporary management?	☐	☐	☐	☐
a. If not, should it be referred to that program?	☐	☐	☐	☐

A_D. Administrative factors—Enforcement

Question	Yes	No	N/A?	In CARP?
A_D1. Is the PWS under an Agreed Order (AO), Corrective Action Plan (CAP), Compliance Schedule, or other enforcement process?	☐	☐	☐	☐
a. If so, is that action related to EC+, TC+, or sanitary defects?	☐	☐	☐	☐
b. If so, does this assessment identify uncorrected items cited in a TCEQ order (of any type)?	☐	☐	☐	☐
c. Is documentation attached?	☐	☐	☐	☐

Section 2: Coliform and Disinfectant Residual Monitoring

B. Coliform monitoring and analysis

Questions	Yes	No	N/A?	In CARP?
B1. Has the PWS's Coliform Sample Siting Plan been submitted to TCEQ?	☐	☐	☐	☐
a. Was it approved by TCEQ?	☐	☐	☐	☐
b. Was sampling performed in accordance with the plan?	☐	☐	☐	☐
c. Have additional sites been identified for system growth?	☐	☐	☐	☐
B2. Were all repeats collected, including raws (at all source wells operating at the time of the TC+ or EC+)?	☐	☐	☐	☐
a. As of the L2A date, are all specials and repeats NEGATIVE?	☐	☐	☐	☐
b. Were any samples unsuitable for analysis?	☐	☐	☐	☐
B3. Were all samples collected according to a coliform sample collection SOP?	☐	☐	☐	☐
a. Does the system have a coliform sample collection SOP				
b. Is the SOP given to all appropriate staff?	☐	☐	☐	☐
c. Is the SOP accessible to staff (if they are not provided with a copy)?	☐	☐	☐	☐
d. Is new-employee training performed and documented?	☐	☐	☐	☐
e. Is refresher training periodically performed and documented?	☐	☐	☐	☐
f. Is staff performance related to the following procedures and guidelines in the sample collection SOP evaluated periodically?	☐	☐	☐	☐
B4. Does the coliform sample collection SOP include these precautions to be considered when collecting samples as found in TCEQ regulatory guidance document RG-421?	☐	☐	☐	☐
a. Using sanitary bottles from lab, verifying expiration date,	☐	☐	☐	☐
b. Using proper preservation techniques/methods, following chain of custody requirements?	☐	☐	☐	☐
c. Site observation (Checking the site for sanitary conditions, not collecting samples in adverse weather conditions)?	☐	☐	☐	☐
d. Removing hoses, fittings, etc?	☐	☐	☐	☐
e. Wearing protective equipment to minimize the risk of contaminating the sample (latex gloves, etc.)?	☐	☐	☐	☐
f. Disinfecting the sampling tap by swabbing with a chlorine solution (or flaming)?	☐	☐	☐	☐
g. Reporting unsuitable sampling site issues to supervisor or owner?	☐	☐	☐	☐
h. Flushing to achieve calculated flush time?	☐	☐	☐	☐
i. Does the SOP describe what to do when there is no residual after the calculated flush time?	☐	☐	☐	☐

C. Disinfectant Residual Monitoring

Questions	Yes	No	N/A?	In CARP?
C1. Were all required disinfectant residual monitoring samples collected as required?	☐	☐	☐	☐
a. Was monitoring performed at locations listed in to the Monitoring Plan and at the proper frequency?	☐	☐	☐	☐
b. Were disinfectant residuals collected with all coliform samples?	☐	☐	☐	☐
c. Were routine distribution monitoring samples collected?	☐	☐	☐	☐
d. Were sampling sites rotated through designated sites (if necessary)?	☐	☐	☐	☐
C2. Were all distribution residual samples at least the required minimum (0.2 mg/L free chlorine or 0.5 mg/L total for chloramines)?	☐	☐	☐	☐
C3. Was there any time when distribution residual dropped to zero?	☐	☐	☐	☐
C4. Were all samples collected according to a sample collection SOP?	☐	☐	☐	☐
a. Is that SOP disseminated to and accessible to all appropriate staff?	☐	☐	☐	☐
b. Is periodic and new-employee training performed and documented?	☐	☐	☐	☐
c. Is staff performance related to following specific procedures and guidelines periodically evaluated and documented?	☐	☐	☐	☐
C5. Does the SOP include:	☐	☐	☐	☐
a. Flushing to achieve calculated flush time?	☐	☐	☐	☐
b. Appropriate sampling method?	☐	☐	☐	☐
c. Reporting unsuitable sampling site issues to supervisor or owner?	☐	☐	☐	☐
d. Proper sampling equipment requirements?	☐	☐	☐	☐
C6. Were the results correctly reported on the DLQOR or SWMOR?	☐	☐	☐	☐
C7. Are all instruments calibrated and accurate?	☐	☐	☐	☐
a) Is calibration performed at an adequate frequency?	☐	☐	☐	☐
b) Are calibration records complete and up to date?	☐	☐	☐	☐

D. Nitrification (for PWSs that have chloramines)

If the PWS ONLY has free chlorine in their distribution system, check here and skip to the next section. ❍

D1. Did nitrification occur during the TC/EC+ event?	☐	☐	☐	☐
a) Has nitrification occurred recently?	☐	☐	☐	☐
b) Has nitrification occurred in the preceding 12 months?	☐	☐	☐	☐
D2. Has the PWS developed an adequate Nitrification Action Plan (NAP)?	☐	☐	☐	☐
a. Has the system set meaningful goals, baselines, and triggers?	☐	☐	☐	☐
b. Does the NAP contain effective response actions?				
c. Has the system shared the NAP with operators?	☐	☐	☐	☐
D3. If so, do they implement the NAP?	☐	☐	☐	☐

a. Is all required monochloramine, ammonia, nitrite, and nitrate sampling performed?	☐	☐	☐	☐
b. Were any triggers triggered?	☐	☐	☐	☐
c. If heterotrophic plate count bacteria (HPC) is measured, were levels higher than baseline? (attach)	☐	☐	☐	☐
d. If pH is measured, were levels lower than baseline? (attach data)	☐	☐	☐	☐
e. If another parameter is used, did it trigger an action? What parameter _____	☐	☐	☐	☐
f. Were appropriate actions taken in response to the triggers?	☐	☐	☐	☐
D4. Was the PWS performing a temporary conversion to free chlorine during or recently before or after the TC/EC+ event?	☐	☐	☐	☐

Individual Coliform Site and Sample Assessments

(Document on-site assessment of EACH TC+/EC+ site and sample).
Add pages as needed for additional TC+/EC+ sites and samples.

TC+/EC+ SITE Number __	Site ID:	Address:
Describe location type: (active service connection hose bibb, sample station, hydrant, etc.)		
Describe sanitary condition of tap (Assessor on-site observation):		
Calculated Flush Time (If PWS documents it):		
Date(s) of positive:	results at Site: ____ TC+ ____ EC+	Disinfection result(s) collected with positive(s):

Site 1	**Yes**	**No**	**N/A?**	**In CARP?**
1. Were samples unsuitable for analysis (UFA) found at this site historically (particularly in samples immediately prior to positive)?	☐	☐	☐	☐
2. Did low residuals occur at this site recently?	☐	☐	☐	☐
a. If PWS uses chloramines, was evidence of nitrification documented at this site?	☐	☐	☐	☐
b. If chloramines are used, were all analytes measured at the time of the positive (total chlorine, monochloramine, free ammonia, nitrite, and nitrate)?	☐	☐	☐	☐
4. Were unsanitary conditions observed (ex: standing sewage, refuse, animal fecal matter, etc.)?	☐	☐	☐	☐
5. Is the sample site used frequently? How frequently _____	☐	☐	☐	☐
6. Is point-of-use treatment present upstream of a TC+ site?	☐	☐	☐	☐
7. Is the sample site located in close proximity to an onsite sewage facility spray field or perforated drain field? How close _____	☐	☐	☐	☐
8. Is a health hazard present at the sample site?	☐	☐	☐	☐
a. Has a Customer Service Inspection been performed at any active service connections where TC+ or EC+ occurred?	☐	☐	☐	☐
b. Are all appropriate backflow protection devices present?	☐	☐	☐	☐
c. If so, have they been inspected? If so, do they work?	☐	☐	☐	☐
9. Are air release vents installed correctly (not backwards)?	☐	☐	☐	☐
10. Are animals nearby or is there evidence that they have been? (for example, feces)	☐	☐	☐	☐
Observations (document usage, plumbing, breaks, repairs)				

Section 3: Sources:

General Source Questions	Yes	No	N/A?	In CARP?
1. Have any sources recently been introduced into the system?	☐	☐	☐	☐
a. If an emergency well was placed back into service after several months of inactivity, was it appropriately tested?	☐	☐	☐	☐
b. If new wells were placed into service, or maintenance was performed on existing wells, was the well and equipment properly disinfected according to AWWA standards? Were the appropriate bacteriological samples collected before placing it into service?	☐	☐	☐	☐
c. Have any existing sources changed operational status or exhibited any noticeable changes in water quality or output?	☐	☐	☐	☐
2. Have there been any extreme weather events that have recently impacted any source?	☐	☐	☐	☐
3. Have there been any security breaches impacting any water source?	☐	☐	☐	☐
4. Does the PWS implement a Source Water Protection Program?	☐	☐	☐	☐
a. If so, were any issues identified through the program?	☐	☐	☐	☐
5. Does the PWS implement a Triggered Source Monitoring Plan?	☐	☐	☐	☐
a. If so, was it used appropriately for follow-up sampling?	☐	☐	☐	☐
6. Does the PWS implement a Drought Contingency Plan?	☐	☐	☐	☐
a. If so, was it implemented appropriately?	☐	☐	☐	☐
b. If not, did poor or no implementation of the drought contingency plan cause a degradation in source water quality?	☐	☐	☐	☐
c. Has drought impacted source availability?	☐	☐	☐	☐
d. Has drought caused the system to utilize water sources that they don't often use, such as emergency wells, old city lakes, etc.?	☐	☐	☐	☐

E. Groundwater Sources—Wells, including GUI wells

If the PWS does not use any well source(s), including groundwater under the influence of surface water (GUI), check here and skip to the next section. ❍

Complete an assessment for each well that may influence the area where EC+ and/or TC+ was found.

Add pages as needed to document each operational well influencing the area.

WELL _____	Source ID:	Location:
Describe sanitary condition of well head:		
Sample tap present?	Sample tap adequate?	
Raw results available?	Raw results absent or present coliform?	
GUI?	GUI reevaluation needed?	

Individual Well Assessment Questions	**Yes**	**No**	**N/A?**	**In CARP?**
E1. Is there an appropriate intruder resistant fence around this well?	☐	☐	☐	☐
a. Is there a locked gate?	☐	☐	☐	☐
b. Is the gate left unlocked?	☐	☐	☐	☐
E2. Is there evidence of cross connections around this well?	☐	☐	☐	☐
E3. Does the PWS own all the land within 150 feet of this well?	☐	☐	☐	☐
a. If not, does it have a Sanitary Control Easement (SCE)?	☐	☐	☐	☐
b. If not, does it have an approved SCE exception?	☐	☐	☐	☐
E4. Are there hazards that could impact the well?	☐	☐	☐	☐
If so, describe:				
E5. Is the exposed portion of this well sanitary and in good condition?	☐	☐	☐	☐
If not, describe unsanitary conditions:				
E10. Is the well operable and correctly maintained?	☐	☐	☐	☐
E11. Are well pumps maintained and operational?	☐	☐	☐	☐
Observations				
Comment: Are there aspects of well construction and operation that would bear on observed positives?				

F. Sources—Purchased water sources

If the PWS does not use a purchased-water source, check here and skip to the next section. skip this section. ❍

Complete an assessment for each purchased potable water source that influences the area where EC+ or TC+ was found.

Add pages as needed to document each operational well influencing area.

Source _____	Source ID:	Location:
Describe sanitary condition of well head:		
Sample tap present?	Sample tap adequate?	
First customer site used?		
Historical sampling performed?	Source water quality adequate?	

Questions	**Yes**	**No**	**N/A?**	**In CARP?**
F1. Does every purchased water source have an entry point sample tap?	☐	☐	☐	☐
a. Is the sample tap sanitary and accessible?	☐	☐	☐	☐
b. Does the sample tap adequately represent entry point water quality?	☐	☐	☐	☐
F2. Are all the purchased water source entry points well-maintained?	☐	☐	☐	☐
F3. Is there an appropriate testable or inspectable backflow prevention device at the wholesale master meter?	☐	☐	☐	☐
a. Has it been inspected (as documented by an inspection report) within the past year?	☐	☐	☐	☐
b. If an inspection found issues, were they fixed?	☐	☐	☐	☐
F4. Has source water quality changed recently or has there been an interruption in service?	☐	☐	☐	☐
a. Is water quality data available and attached if needed?	☐	☐	☐	☐
F5. Have there recently been security breaches impacting any purchased source?	☐	☐	☐	☐
F6. Do all required purchase water contracts exist?	☐	☐	☐	☐
a. Does the contract stipulate quality of water in addition to quantity?	☐	☐	☐	☐
b. Is the contract current and up-to-date?	☐	☐	☐	☐
F7. Has the seller recently had any TC+, EC+, or unsuitable samples?	☐	☐	☐	☐

Observations

Comment: Are there aspects of this purchased water source that would bear on observed positives?

G. Sources—Surface Water Intakes

If the PWS does not own or operate any surface intakes or treatment plants, check here and skip to the next section. ❍

Complete an assessment for each surface water source that may influence the area where EC+ and/or TC+ was found.

Add pages as needed to document each operational well influencing area.

Intake _____	Source ID:	Location:
Describe sanitary condition of intake:		
Sample tap present?	Sample tap adequate?	
Lab tap used?		
Historical sampling performed?	Source water quality adequate?	

Questions	**Yes**	**No**	**N/A?**	**In CARP?**
G1. Is the surface water intake screened, routinely inspected, well maintained, and operational?	☐	☐	☐	☐
a. Are accurate plans representing the design of the intake available for review?	☐	☐	☐	☐
b. Is documentation available that the intake was constructed as designed?	☐	☐	☐	☐
c. If not, are as-built plans or an engineering report available?	☐	☐	☐	☐
d. Is the intake being operated as designed?	☐	☐	☐	☐
G2. Is the required restricted zone established and maintained around the intake? Signage posted? Buoys provided?	☐	☐	☐	☐
G3. Is it fixed or variable level?	☐	☐	☐	☐
a. If variable level, is the water system pulling from the level with the best water quality?	☐	☐	☐	☐
b. If variable level, is the water system limited on which levels they can utilize resulting from poor maintenance or operational issues?	☐	☐	☐	☐
c. If fixed level, has excessive siltation led to the intake being located on the bottom or anoxic layer of the water source?	☐	☐	☐	☐
G4. Has the intake been changed?	☐	☐	☐	☐
a. Has it been moved due to drought?	☐	☐	☐	☐
b. If so, was it relocated to an area with poor water quality?	☐	☐	☐	☐
G5. Is this intake part of a Source Water Protection Plan?	☐	☐	☐	☐
G6. Did any potential sources of contamination impact this intake?	☐	☐	☐	☐
a. Are any new contamination sources present in the watershed area?	☐	☐	☐	☐
b. Have any unusual releases impacted source water quality?	☐	☐	☐	☐
G7. Has source water quality changed recently because of weather?	☐	☐	☐	☐
a. Has drought caused degraded water quality?	☐	☐	☐	☐
b. Has flooding changed source alkalinity? total organic carbon (TOC)? Specific ultraviolet absorption?	☐	☐	☐	☐

c. Have there been any algal blooms?	☐	☐	☐	☐
d. Has stratification occurred due to heat or cold?	☐	☐	☐	☐
e. Has lake turnover recently occurred?	☐	☐	☐	☐
f. Has construction been performed near the intake?	☐	☐	☐	☐
g. Did the source change impact 'treatability'?	☐	☐	☐	☐
h. If so, is relevant supporting data attached?	☐	☐	☐	☐
G8. Are all water pumps and associated meters well maintained?	☐	☐	☐	☐
G9. a. Are facility and high service pumps located in sanitary conditions (ex: away from flooding and other sources of contamination)?	☐	☐	☐	☐
G10. Does a maintenance schedule exist for pumps?	☐	☐	☐	☐
a. Is the maintenance schedule followed?	☐	☐	☐	☐
Observations				
Comment: Are there aspects of this intake that would bear on observed positives?				

Section 4: Treatment

General Questions	Yes	No	N/A?	In CARP?
H1. Are instruments calibrated?	☐	☐	☐	☐
a. Are benchtops calibrated and/or verifiedappropriately?	☐	☐	☐	☐
b. If present, are on-line instruments verified and calibrated according to manufacturer recommendations?	☐	☐	☐	☐
H2. Is water corrosive?	☐	☐	☐	☐
a. Has the system performed a desk-top corrosion control study (CCS)?	☐	☐	☐	☐
b. Has the system performed a bench or pilot CCS?	☐	☐	☐	☐
H3. Does the system have optimal corrosion control treatment (OCCT) in place?	☐	☐	☐	☐
a. Is the system required to practice OCCT?	☐	☐	☐	☐
b. If so, does the PWS use alkalinity and pH adjustment (also known as carbonate passivation)?	☐	☐	☐	☐
c. If so, does the PWS use calcium adjustment (also known as calcium precipitation)?	☐	☐	☐	☐
d. If so, does the PWS use phosphate addition (also known as inhibitor passivation, or use of an inhibitor)?	☐	☐	☐	☐
H4. Has a change in the corrosivity of the water occurred recently?	☐	☐	☐	☐
a. If so, was the change intentional?	☐	☐	☐	☐
b. Did the PWS notify the TCEQ of the intentional change in corrosivity?	☐	☐	☐	☐

H_A. Treatment--Groundwater

If the PWS does not own or operate any wells, check here and skip to the next section. ❍

Complete an assessment for treatment at each well that may influence the area where EC+ and/or TC+ was found.

Well ID:	Address:			
Operational Status:				
Treatments: (list)				
Questions	**Yes**	**No**	**N/A?**	**In CARP?**
H_A1. Is all GW chlorinated (at a minimumprior to storage (or the entry point to the distribution system if storage is not provided)?	☐	☐	☐	☐
a. Does disinfectant usage data show consistency?	☐	☐	☐	☐
b. Is disinfectant residual monitored at entry points?	☐	☐	☐	☐
c. Is disinfection equipment operable and well maintained?	☐	☐	☐	☐
d. Is disinfection equipment properly sized?	☐	☐	☐	☐
e. Is redundancy present in equipment and parts?	☐	☐	☐	☐
H_A 2. Does chlorinated water blend with chloraminated water in the distribution system?	☐	☐	☐	☐
a. If so, does the PWS have an approved blending exception?	☐	☐	☐	☐
b. If so, does the PWS follow that exception adequately?	☐	☐	☐	☐
H_A 3. Is chloramination practiced at this well? (290.46(z), 290.110)	☐	☐	☐	☐
a. If so, is all required monitoring/sampling performed?	☐	☐	☐	☐
b. If so, is the chlorine injected upstream of the ammonia?	☐	☐	☐	☐
c. If so, is the water sampled after chlorine and ammonia mix in?	☐	☐	☐	☐
d. Do they have a suitable sample tap to measure chlorine residual prior to the addition of ammonia?	☐	☐	☐	☐
H_A 4. Is the well required to have 4 log viral inactivation?	☐	☐	☐	☐
a. If so, is treatment present and adequate?	☐	☐	☐	☐
b. Are GWMORs completed correctly?	☐	☐	☐	☐
H_A 5. Is this well deemed a GUI by the TCEQ?	☐	☐	☐	☐
a. If so, does treatment comply with TCEQ-approval letter?	☐	☐	☐	☐
b. Is this well over 100 feet deep?	☐	☐	☐	☐
c. Is this well under 1/4 mile from any standing water?	☐	☐	☐	☐
d. Should this well's GUI status be reevaluated?	☐	☐	☐	☐

H_B. Treatment--Booster disinfection

If the PWS does not own or operate any booster treatment, check here and skip to the next section. ❍

Complete an assessment for each booster treatment facility that may influence the area where EC+ and/or TC+

Booster:	Address:			
Operational Status:				
Treatments: (list)				
Questions	**Yes**	**No**	**N/A?**	**In CARP?**
H_B 1. Are booster chlorination facilities adequately maintained and operated?	☐	☐	☐	☐
H_B 2. If chloramines are used, is ammonia measured before dosing Cl_2?	☐	☐	☐	☐
a. If so, is required monitoring done at least weekly?	☐	☐	☐	☐
b. If so, is ammonia addition available?	☐	☐	☐	☐
H_B 3. Does all treatment comply with TCEQ approval letter?	☐	☐	☐	☐
H_B 4. Is booster station accessible and located in sanitary conditions?	☐	☐	☐	☐
Observations				
Comment: Are there aspects of this booster treatment that would bear on observed positives?				

H_C. Treatment--Surface Water Treatment Plant (SWTP)

If the PWS does not own or operate a surface water treatment system, check here and skip to the next section.. ❍

Complete an assessment for surface water treatment plant (SWTP) influencing the area of concern.

SWTP:	Address:
Operational Status:	

Questions	**Yes**	**No**	**N/A?**	**In CARP?**
H_C 1. Have there been any recent interruptions in treatment?	☐	☐	☐	☐
H_C 2. Have significant changes been made to any treatment processes?	☐	☐	☐	☐
a. Has any new equipment been installed?	☐	☐	☐	☐
b. Have retrofits been recently introduced to any processes or treatment units?	☐	☐	☐	☐
c. Was a notification letter sent to TCEQ?	☐	☐	☐	☐
H_C 3. Are all treatment processes and units correctly maintained and operational?	☐	☐	☐	☐
H_C 4. Is all water quality data within normal operating ranges?	☐	☐	☐	☐
H_C 5. Have all SWTPs and GUIs met all CT requirements for the assessment month?	☐	☐	☐	☐
a. Is a TCEQ-approved CT study present and up-to-date?	☐	☐	☐	☐
b. Are treatment processes and techniques consistent with the approved CT study?	☐	☐	☐	☐
c. Is CT data collected and reported correctly on pages 4 and 5 of the SWMORs?	☐	☐	☐	☐
H_C 6. Did all filtered and finished water turbidity levels meet regulatory requirements?	☐	☐	☐	☐
H_C 7. Has all sampling and monitoring equipment used for SWMOR reporting been properly calibrated?	☐	☐	☐	☐
H_C 8. a. Was turbidimeter data integrity assessed?	☐	☐	☐	☐
a. Is the Controller Error Hold Mode set to Transfer to 0.0 NTU?	☐	☐	☐	☐
b. Are IFE and CFE signal span (minimum and maximum turbidity data capping) set to span from 0.0 to 5.2 NTU?	☐	☐	☐	☐
c. Is the data recorder calibrated to sensor output and output must be scaled to match the SCADA or recorder scale?	☐	☐	☐	☐
d. Is bubble reject ON?	☐	☐	☐	☐
e. Is averaging set to 30 seconds?	☐	☐	☐	☐
f. Is sample flow measured at least monthly?	☐	☐	☐	☐
g. Are bulbs replaced at least annually?	☐	☐	☐	☐
h. Are weekly verification checks performed with a calibrated bench-top turbidimeter?	☐	☐	☐	☐
i. Are there written SOPs for turbidimeter settings?	☐	☐	☐	☐
j. Are turbidimeters set to 'Hold Outputs' during calibration and maintenance activities?	☐	☐	☐	☐

Section 5: Distribution

I. Distribution facilities

Facilities, repair, construction	Yes	No	N/A?	In CARP?
I 1. Are distribution facilities **designed** to protect against sewage contamination?	☐	☐	☐	☐
a. Does the PWS have engineered plans for the distribution system?	☐	☐	☐	☐
b. Does the PWS have as-built plans or record drawings?	☐	☐	☐	☐
c. Does the PWS have TCEQ approval documentation for all distribution facilities, or have multiple "less-than-10%" serial enlargements been made?	☐	☐	☐	☐
d. Is there an ordinance or development plan to loop new construction?	☐	☐	☐	☐
e. Does the PWS have documentation of pipe materials?	☐	☐	☐	☐
I 2. Are distribution facilities **constructed** to protect against sewage contamination?	☐	☐	☐	☐
a. Are any fire hydrants/blow offs located in high water table area?	☐	☐	☐	☐
b. Are there documentable differences between what was approved for construction and what was actually installed?	☐	☐	☐	☐
c. Are there observed differences?	☐	☐	☐	☐
I 3. Are distribution facilities **operated** to protect against contamination?	☐	☐	☐	☐
a. Is there any valve maintenance program?	☐	☐	☐	☐
b. Are all pumps, valves, and meters maintained and operational?	☐	☐	☐	☐
c. Are pipes and valves properly stored off the ground and or under cover prior to use?	☐	☐	☐	☐
I 4. Was there any planned or unplanned construction?	☐	☐	☐	☐
a. If so, were AWWA disinfection standards followed when disinfecting the equipment prior to installation and post-construction prior to being placed into service?	☐	☐	☐	☐
b. If so, were trenches properly disinfected prior to beginning construction? Were the pipes, valves or appurtenances below water during construction or repair?	☐	☐	☐	☐
c. If so, were the appropriate number of "Special" or "Construction" bacteriological samples collected prior to placing water lines, valves and appurtenances back into service?	☐	☐	☐	☐
d. If so, were they negative for total coliform and *E. coli*?	☐	☐	☐	☐
Observations				
Comment: Are there aspects of distribution facilities that could contribute to the observed EC+ or TC+?				

J. Distribution pressure and usage

Pressure/outages during or recently before the time the EC+ was collected	**Yes**	**No**	**N/A?**	**In CARP?**
J1. Did unusual demand occur? For example, firefighting or main break?	☐	☐	☐	☐
J2. Did the pressure drop below 35 psi anywhere?	☐	☐	☐	☐
J3. Did the pressure drop below 20 psi anywhere?	☐	☐	☐	☐
J4. Did any water outage occur?	☐	☐	☐	☐
J5. Did the PWS issue a boil water notice (BWN) for inadequate pressure?	☐	☐	☐	☐
J6. Was a low pressure area disinfected according to AWWA standards before being returned to service?	☐	☐	☐	☐
a) Were all other special precautions taken in accordance with the Special Precautions Flowchart?	☐	☐	☐	☐
J7. Is all reasonable care taken to secure distribution facilities?	☐	☐	☐	☐
Water loss	☐	☐	☐	☐
J8. Has the system completed a water loss audit report?	☐	☐	☐	☐
a. Is the PWS required by the Texas Water Development Board (TWDB) to perform an annual water loss audit?	☐	☐	☐	☐
b. Were losses greater than 10% the year of or most recent year before the EC+ was collected?	☐	☐	☐	☐
c. Did water leaks make up a large percent of the documented loss?	☐	☐	☐	☐
Observations				
Comment: Did pressure or water loss bear on observed positives?				

K_A. Pressure tanks, storage, and water age

General Storage and Water Age Questions	Answers to Questions			
	Yes	No	N/A?	In CARP?
K_A1. Does the PWS have an understanding of where the areas with the highest water age are located?	☐	☐	☐	☐
a. Did they perform IDSE, and if so have that documentation?	☐	☐	☐	☐
b. If no understanding, can they conduct a water age study without assistance?	☐	☐	☐	☐
c. If no to b, describe assistance follow up in CARP,	☐	☐	☐	☐
K_A 2. Are storage tanks routinely deep cycled to manage and minimize water age?	☐	☐	☐	☐
a. If so, can operators prevent pressures from dropping below 20 psi?	☐	☐	☐	☐
b. Are storage tank levels managed by distribution personnel?	☐	☐	☐	☐
c. By plant personnel?	☐	☐	☐	☐
d. If storage tank management communication is an issue, describe in CARP.	☐	☐	☐	☐
K_A 3. Has low water use during drought conditions or water rationing caused excessive water age?	☐	☐	☐	☐
a. Was water use restricted during EC+/TC+ occurrence?	☐	☐	☐	☐
Flushing to Control Water Age	**Yes**	**No**	**N/A?**	**In CARP?**
K_A 4. Does the PWS have a list and map of dead-end mains?	☐	☐	☐	☐
a. Does the PWS have "no dead-ends"?	☐	☐	☐	☐
b. Does the PWS know the location of hydraulic dead-ends?	☐	☐	☐	☐
c. Are hydraulic dead-ends flushed?	☐	☐	☐	☐
K_A 5. Does the PWS flush every dead-end main (DEM) monthly?	☐	☐	☐	☐
a. Are pre- and post-DEM flushing residuals measured?	☐	☐	☐	☐
b. Is the quantity of water used documented?	☐	☐	☐	☐
c. Is an appropriate estimation procedure used?	☐	☐	☐	☐
K_A 6. Is flushing performed in response to complaints?	☐	☐	☐	☐
a. Is water quality documented during complaint flushing?	☐	☐	☐	☐
b. Is flushing only initiated in reaction to complaints?	☐	☐	☐	☐
K_A 7. Do flushing results indicate excessive water age based on disinfectant residual or appearance?	☐	☐	☐	☐

K_B. Pressure tank details

If PWS does not own or operate any pressure tanks, skip this section. ❍

Complete an assessment for each pressure tank that may influence the area where EC+ and/or TC+ was found.

Add pages as needed.

Pressure tank:	Site ID:	Address:
Describe tank: elevated tank floating on system, standpipe, ground storage tank)		

Pressure Tank Questions	**Yes**	**No**	**N/A?**	**In CARP?**
K_B 1. Did any pressure tanks influence TC+/EC+ area?	☐	☐	☐	☐
K_B 2. Are any such facilities adequately operated or maintained?	☐	☐	☐	☐
a. Are air filters properly installed and maintained (if oil-less unit is present, check 'N/A')?	☐	☐	☐	☐
b. Are compressors properly installed, maintained, and operational?	☐	☐	☐	☐
K_B 3. Is exterior inspected annually?	☐	☐	☐	☐
K_B 4. Is interior inspected every five years?	☐	☐	☐	☐
K_B 5. Have any issues found in inspections been fixed?	☐	☐	☐	☐
K_B 6. Is pressure measurement instrumentation available?	☐	☐	☐	☐
K_B 7. Is relevant pressure data attached?	☐	☐	☐	☐

K_C. Storage tank details

If PWS does not own or operate any storage tanks, skip this section. ❍

Complete an assessment for each storage tank that may influence the area where EC+ and/or TC+ was found. Add pages as needed.

Storage tank:	Site ID:	Address:
Describe tank: (e.g.: elevated tank floating on system, standpipe, ground storage tank)		
What is the refresh rate of this tank? (volumes per day)		

Observations of this specific storage tank	**Yes**	**No**	**N/A?**	**In CARP?**
K_C 1. Is this tank designed and operated to prevent excessive water age?	☐	☐	☐	☐
a) Are high and low level operating levels set to promote effective turnover and refreshing of the water in the tank?	☐	☐	☐	☐
b) Is the tank turnover less than 1 tank volume(s) per day)?	☐	☐	☐	☐
c) Does this tank float on distribution (in=out)?	☐	☐	☐	☐
d) Are the inlet and outlet designed and oriented in a way to prevent short circuiting and stratification?	☐	☐	☐	☐
K_C 3. Is this tank inside an intruder-resistant fence?	☐	☐	☐	☐
a) Is there evidence of intrusion or vandalism?	☐	☐	☐	☐
K_C 4. Is this storage tank well maintained and operational?	☐	☐	☐	☐
a) Is a proper water level indicator provided?	☐	☐	☐	☐
b) Are drains properly connected and water tight?	☐	☐	☐	☐
K_C 5. Has this storage tank been inspected recently? When _____	☐	☐	☐	☐
a) Are tank inspection forms attached?	☐	☐	☐	☐
b) Have all issues found during inspections been fixed?	☐	☐	☐	☐
c) Is an adequate inspection ladder provided?	☐	☐	☐	☐
d) Are photos of tank interior available?	☐	☐	☐	☐
e) Are photos attached?	☐	☐	☐	☐
K_C 6. Is the tank tight against leakage?	☐	☐	☐	☐
a) Is this storage tank properly covered?	☐	☐	☐	☐
K_C 7. Do all gaps measure 1/16" or less?	☐	☐	☐	☐
a) Are openings properly screened (16-mesh or finer)?	☐	☐	☐	☐
b) Is a proper overflow provided? (at most a 1/16" gap on hinged lid)?	☐	☐	☐	☐
c) Does the overflow terminate above grade and in a well-drained area?	☐	☐	☐	☐
d) If not, is it submerged in a storm channel, creek, etc?	☐	☐	☐	☐
e) Are vents properly installed?	☐	☐	☐	☐

K_C 8. Is a proper roof hatch provided? (≥30")	☐	☐	☐	☐
a) Is roof hatch kept locked?	☐	☐	☐	☐
b) 4" raised curbing around roof opening, overlapped?	☐	☐	☐	☐
K_C 9. Is sampling performed to determine the disinfectant residual within the tank?	☐	☐	☐	☐
a) Was disinfectant residual adequate during assessment?	☐	☐	☐	☐
b) Were residuals consistent with any tanks that it is plumbed with?	☐	☐	☐	☐
c) Is disinfectant level in tanks routinely checked?	☐	☐	☐	☐
d) Does the sample protocol allow differentiation between water entering and water leaving the tank?	☐	☐	☐	☐
e) Data attached if needed?	☐	☐	☐	☐
K_C 10. Did any facility maintenance occur?	☐	☐	☐	☐
a) Was the tank disinfected according to AWWA standards prior to being placed back into service?	☐	☐	☐	☐
b) Was a "Special" or "Construction" bacteriological sample collected prior to placing the tank back into service?	☐	☐	☐	☐
K_C 10. Does this tank contribute to excessive water age?	☐	☐	☐	☐
a) Is it possible to bypass this tank or take it off-line to manage water age?	☐	☐	☐	☐
b) Can this tank be emptied for cleaning and maintenance?	☐	☐	☐	☐

Storage Tank Observations
Comment: Are there aspects of the storage or pressure tanks that could contribute to observed positives?

Section 6: Cross-Connection Control

L. Cross-connection, backflow, backsiphonage

On-site observations	Yes	No	N/A?	In CARP?
Cross connection in distribution?				
L1. Did a cross-connection, backflow, or backsiphonage event occur?	☐	☐	☐	☐
a) Did a failure of a backflow prevention assembly (BPA) cause the EC+?	☐	☐	☐	☐
b) Did the absence of a backflow prevention device cause the EC+/TC+?	☐	☐	☐	☐
L2. Was a Customer Service Inspection (CSI) performed at active connections where an EC+/TC+ occurred? (attach report if so)	☐	☐	☐	☐
a) Were unprotected hazards identified in the CSI?	☐	☐	☐	☐
Cross connection at other facilities				
L3. Were cross-connections observed in the chemical feed facilities (chemical makeup water)?	☐	☐	☐	☐
L4. Were cross-connections observed in areas in close proximity to where the EC+/TC+ were collected?	☐	☐	☐	☐
CCCP (Cross-Connection Control Program)				
L5. Does the PWS have an adequate CCCP? (see Questionnaire)	☐	☐	☐	☐
Plumbing ordinance or service agreement				
L6. Is the PWS required to adopt a plumbing ordinance?	☐	☐	☐	☐
a) Does the PWS have an adopted plumbing ordinance?	☐	☐	☐	☐
b) If so, does the PWS implement and enforce the backflow aspects of its adopted plumbing ordinance?	☐	☐	☐	☐
L7. Is the PWS required to have retail customer service agreements?	☐	☐	☐	☐
Does the PWS require all customers to sign the service agreement before providing water?	☐	☐	☐	☐
Does the service agreements use the language from 290.47?	☐	☐	☐	☐
If not, do they have an exception letter from the TCEQ granting approval for utilizing an alternative form?	☐	☐	☐	☐
L8. Is the ordinance and/or service agreement enforceable?	☐	☐	☐	☐
a) Is it enforced?	☐	☐	☐	☐
Customer Service Inspections (CSIs)				
L9. Are CSIs performed on new construction?	☐	☐	☐	☐
L10. Are CSIs performed when a potential hazard exists?	☐	☐	☐	☐
L11. Are CSIs performed when water service has changed owners?	☐	☐	☐	☐
L12. Does the PWS have a licensed Customer Service Inspector on staff?	☐	☐	☐	☐
a) Does the PWS use contractor services to do CSIs?	☐	☐	☐	☐
b) Is oversight of contractors or PWS staff adequate?	☐	☐	☐	☐
L12. a. Is an approved form used for CSIs?	☐	☐	☐	☐
a) If not, do they have an exception letter from the TCEQ granting	☐	☐	☐	☐

approval for utilizing an alternative form?				
L13. Are CSI reports retained permanently?	☐	☐	☐	☐
a) Are CSI reports retained 10 years?	☐	☐	☐	☐
L14. Are hazards appropriately recognized by the PWS's CSIs?	☐	☐	☐	☐
a) Are private wells allowed without BPAT protection?	☐	☐	☐	☐
b) Are irrigation systems identified as hazards?	☐	☐	☐	☐
c) Are septic fields identified as hazards?	☐	☐	☐	☐
d) Are water trucks allowed to fill up without cross-connection control?	☐	☐	☐	☐
Backflow prevention (BFP) assemblies and testing (BPAT)				
L14. Backflow protection installed at all hazard locations?	☐	☐	☐	☐
L15. All BFP assemblies tested upon installation?	☐	☐	☐	☐
L16. All BFP assemblies tested annually?	☐	☐	☐	☐
a) Original forms retained?	☐	☐	☐	☐
b) Correct form?	☐	☐	☐	☐
L17. Are BFP testing BPAT records maintained for at least 3 years?	☐	☐	☐	☐
L18. Are gauges tested for accuracy annually?	☐	☐	☐	☐
a) Is oversight of BPAT contractors or PWS staff adequate?	☐	☐	☐	☐
Comment: Does an inadequate CCCP contribute to TC+ &/or EC+?				

Section 7: Security, weather, and significant events

M. Security

f a security breach occurred, describe it in the Corrective Action Report and Plan.

Security Program and Security Event Questions	**Yes**	**No**	**N/A?**	**In CARP?**
M1. Did any security breaches or vandalism occur?	☐	☐	☐	☐
Did intentional contamination occur?	☐	☐	☐	☐
M2. Does the system have an Emergency Response Plan (ERP)?	☐	☐	☐	☐
a. If required, does the PWS have an ERP?	☐	☐	☐	☐
b. Does the system have a generator?	☐	☐	☐	☐
c. If so, is the generator maintained according to NEPA standards?	☐	☐	☐	☐
d. Have there been any interruptions to electrical power?	☐	☐	☐	☐
M3. Has system operation been interrupted?	☐	☐	☐	☐
a. Has there been an interruption in source availability?	☐	☐	☐	☐
b. Has there been an interruption in treatment?	☐	☐	☐	☐
Weather and Environmental Event Questions	**Yes**	**No**	**N/A?**	**In CARP?**
M4. Were adverse weather conditions present during the time that the Level 2 Assessment was triggered?	☐	☐	☐	☐
M5. Has there been a waterborne disease outbreak?	☐	☐	☐	☐
M6. Is the system currently impacted by drought?	☐	☐	☐	☐
Has past drought impacted the system negatively?	☐	☐	☐	☐
M7. Has the system been adversely impacted by rain or flooding?	☐	☐	☐	☐
Has any groundwater source been inundated?	☐	☐	☐	☐
M8. Have extremes in heat occurred?	☐	☐	☐	☐
a. Have extremes in cold occurred?	☐	☐	☐	☐
b. Have extremes in heat or cold impacted water quality?	☐	☐	☐	☐
M9. Have there been any sanitary sewer overflows?	☐	☐	☐	☐

Comment: Did any security or weather issue contribute to TC+ &/or EC+?

Section 8: Sanitary defects and corrective actions

N. Sanitary Defects

Questions	Yes	No	N/A?	In CARP?
N1. Were sanitary defects identified?	☐	☐	☐	☐
N2. Did a sanitary defect that you found cause the TC+(s), or could it have?	☐	☐	☐	☐
N3. Did the PWS fix a sanitary defect(s) (partially or completely)?	☐	☐	☐	☐
N4. Does the PWS plan to fix the defect(s)?	☐	☐	☐	☐

Corrective Action Report and Plan

Report on any issues that were found. Describe action taken by PWS to fix issues. If an issue is not yet fixed attach the recommended plan to correct it with a proposed timeline. Attach additional sheets if necessary.

Issue description:	**Worksheet & Question Number:**
Describe what happened, where, when, how.	
Corrective Action(s)	Status▼
	___Complete ___Need extension

Submit the form and attachments to:
Attn: WSD RTCR L2A, MC-155 | TCEQ | PO Box 13087 | Austin TX 78711-3087